ecology and environment, inc.

108 SOUTH WASHINGTON, SUITE 302, SEATTLE, WASHINGTON 98104, TEL. 206-624-9537

International Specialists in the Environmental Sciences

SITE INSPECTION REPORT OF ADVANCE ELECTROPLATING, INC. SEATTLE, WASHINGTON

TDD R10-8510-21

Ecology and Environment, Inc.
Report Prepared By: Jeff Whidden
Report Date: May 1986

Submitted To: J.E. Osborn, Regional Project Officer
Field Operations and Technical Support Branch
U.S. Environmental Protection Agency
Region X
Seattle, Washington

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International Specialists in the Environmental Sciences

MEMORANDUM

DATE: September 2, 1986

TO: John Osborn, FIT RPO, USEPA, Region X

THRU: David A. Buecker, FIT RPM, E&E, Seattle

FROM: for Jeff Whidden, E&E, Seattle

SUBJ: Recommendations for Advance Electroplating, Inc.
Seattle, Washington
Revised

REF: TDD R10-8510-21

CC: Carolyn Wilson, USEPA, Region X
Debbie Flood, USEPA, Region X
R. Fullner, E&E, Seattle
T. Tobin, E&E, Seattle

No further investigation of Advance Electroplating, Inc. (AEI) under the Comprehensive Environmental Response, Compensation, and Liability Act (CERCLA) is recommended at this time. A Resource Conservation and Recovery Act (RCRA) inspection should be considered to further assess the waste solvent storage area and the plating waste storage tank area.

As part of a trade of services agreement with King County, the Municipality of Metropolitan Seattle (METRO) is currently beginning a project to expand South 96th Street east from 8th Avenue. This project may involve the disturbance and/or excavation of soils along the shoulders of the road. It is therefore possible that ditch sediments potentially contaminated with heavy metals from AEI will be encountered during the construction process. If excavation along the road shoulder is required, METRO should consider characterizing any hazardous constituents which may be present in ditch sediments. The METRO project manager is Alex Marin, telephone number (206) 447-6329, and the project name is: South 96th Street Expansion Project. Construction work is scheduled to begin in September 1986. EPA should contact METRO at that time.

Finally, EPA should consider attempting to obtain more information regarding the unidentified waste hauler who transported wastes from AEI from 1964 until the early 1970s. Boyd Coleman, vice president of AEI, stated that he has no records concerning these shipments or the hauler. One hundred to 150 drums of electroplating wastes were taken from the site each year, but the location of their final disposal is unknown.

ABSTRACT

A file review and site inspection were conducted at Advance Electroplating, Inc. (AEI), Seattle, Washington under Environmental Protection Agency (EPA) Technical Directive Document R10-8510-21 to determine whether proper waste management and disposal procedures are being used and to evaluate the facility's status with the Agency's Uncontrolled Hazardous Waste Site Program.

Although AEI may have contaminated the Duwamish River via a ditch along South 96th Street with heavy metals in the past, there appear to be minimal risks to public health or the environment. Wastes currently generated at AEI are either discharged to the Municipality of Metropolitan Seattle (METRO) sewer or transported from the facility.

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SITE INSPECTION REPORT
ADVANCE ELECTROPLATING, INC.
SEATTLE, WASHINGTON

TDD R10-8510-21

Site Name/Address

Advance Electroplating, Inc.
9585 8th Ave. S.
Seattle, WA 98108

Investigation Participants

Jeff Whidden, Project Manager, FIT, Ecology & Environment, Inc. (E&E), Seattle - (206) 624-9537

Thomas A. Tobin, FIT, E&E, Seattle - (206) 624-9537

Carolyn Wilson, EPA, Region X, Seattle - (206) 442-1632

Michael J. Spencer, Washington Department of Ecology (Ecology), Olympia, Washington - (206) 459-6516

Principal Site Contacts

T. Boyd Coleman, Vice President, Advance Electroplating, Inc., Seattle, Washington - (206) 762-2390

Leigh Laney, Pollution Control Engineer, Advance Electroplating, Inc., Seattle, Washington - (206) 726-2390

Date of Investigation

March 6, 1986 0900-1300 hours

1.0 INTRODUCTION

Advance Electroplating, Inc. (AEI) in Seattle, Washington is an active metal plating facility which has been identified by EPA Region X and the Washington Department of Ecology (Ecology) from preliminary screening as requiring additional information to accurately profile the nature and extent of past waste water disposal activities at the site. Ecology & Environment, Inc. (E&E) has been requested by EPA under Technical Directive Document (TDD) No. R10-8510-21 to conduct a site inspection and evaluate the facility's status within the Agency's Uncontrolled Hazardous Waste Site Program. This report summarizes the results of E&E's site inspection and is divided into the following sections:

- Owner/Operator
- Location
- Site Description and Surrounding Area
- Topography and Drainage

- o Geology/Hydrology
- o Water Use(s)
- o Climate
- o Overview of Facility/Site Operations
- o Characterization of Waste Stream(s)
- o Site Inspection by E&E
- o Sampling Results and Discussion
- o Conclusions

2.0 OWNER/OPERATOR

Electroplating operations at Advance Electroplating, Inc. (AEI) began in 1964, under the joint ownership of R.R. Christopherson, Boyd Coleman, and Thomas O. Presleigh. In 1976, Mr. Presleigh sold his share of the company to Mr. Christopherson and Mr. Coleman, who are the current owners (1, 2.)

3.0 LOCATION

AEI is located at 9585 8th Avenue South, in the South Park industrial area of Seattle (Figure 1). It is in the southwest quarter of Section 32, Township 24 North, Range 2 East, latitude 47^{0} 31' 03.0", longitude 122^{0} 19' 32.0" (Figure 2) (3).

4.0 SITE DESCRIPTION AND SURROUNDING AREA

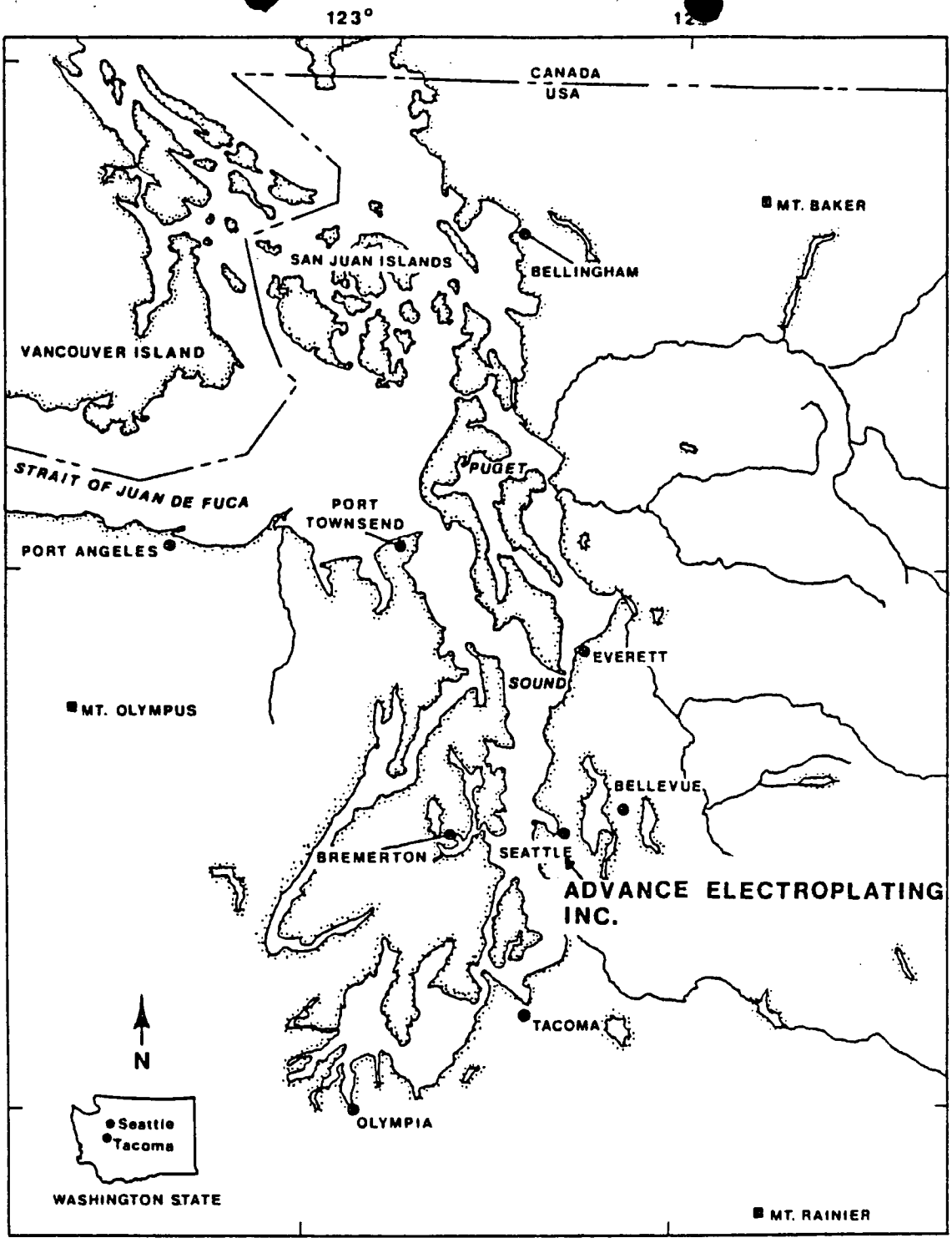
AEI is situated on the northwest corner of South 96th Street and 8th Avenue South. The facility is approximately 1.25 acres in size and consists of an old plating shop, a zinc plating building, and a new plating line building (Figure 3) (1).

AEI is surrounded by a lettuce farm and machine shops to the west, a metal galvanizing plant to the southwest, a container repair facility to the southeast, a semitrailer repair shop to the east, a sandblasting company to the northeast, and a distilled water supplier to the north. Highway 509 is 0.3 miles west of AEI and Des Moines Way South is 0.4 miles to the east (1).

5.0 TOPOGRAPHY AND DRAINAGE

The terrain west of AEI slopes downward 5% to the east, but eases to less than 2% around the site and east to the Duwamish River (3). Several catchbasins are located around the AEI facility (Figure 3). They connect to a storm drain which runs along South 96th Street and eventually emerges before discharging into the Duwamish River.

There are several storm drains in the parking lot area at AEI. Two of them are located along the east side of the facility; one at the corner of South 96th Street and 8th Avenue South and the second approximately 100 feet directly north (1).



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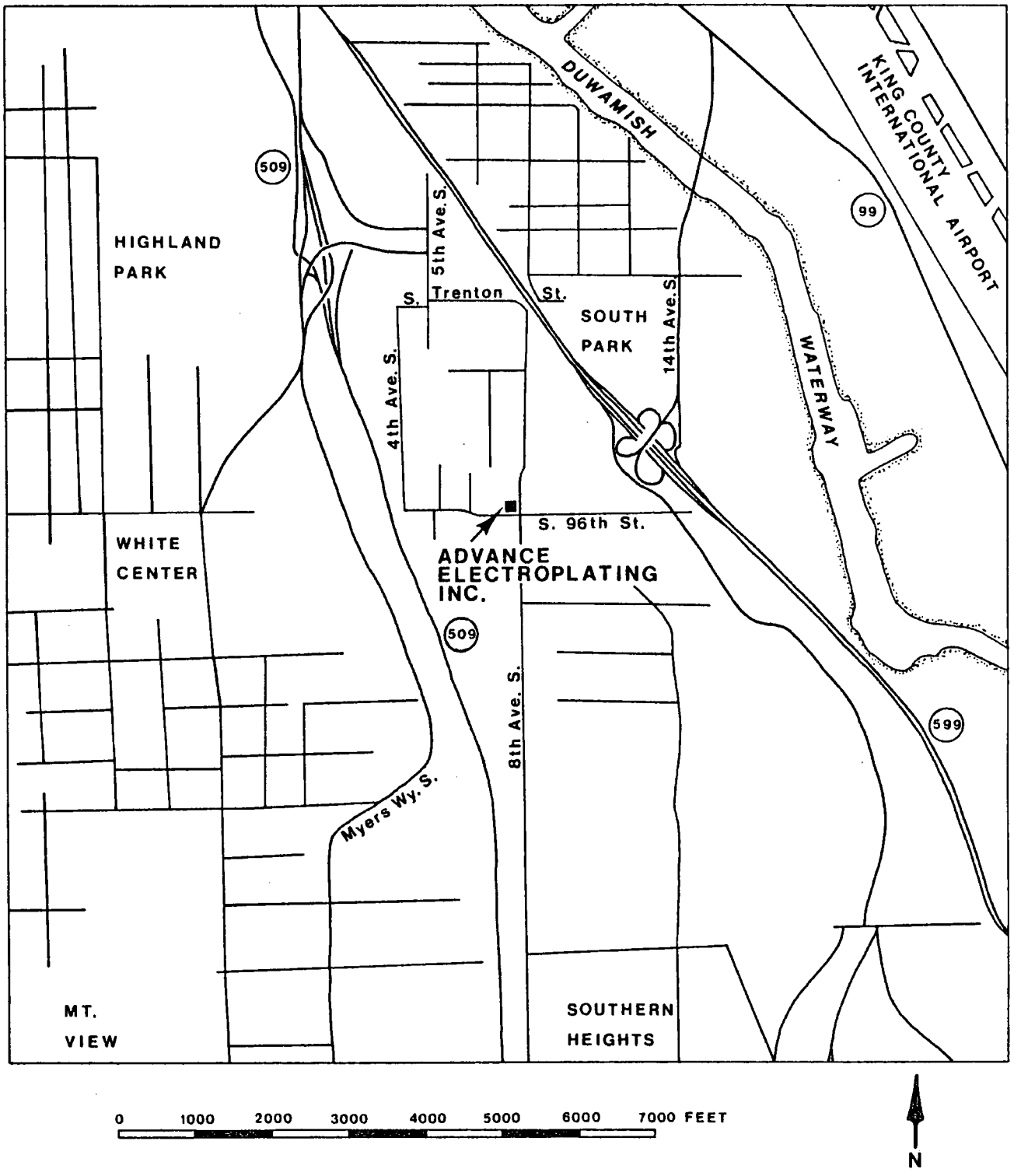
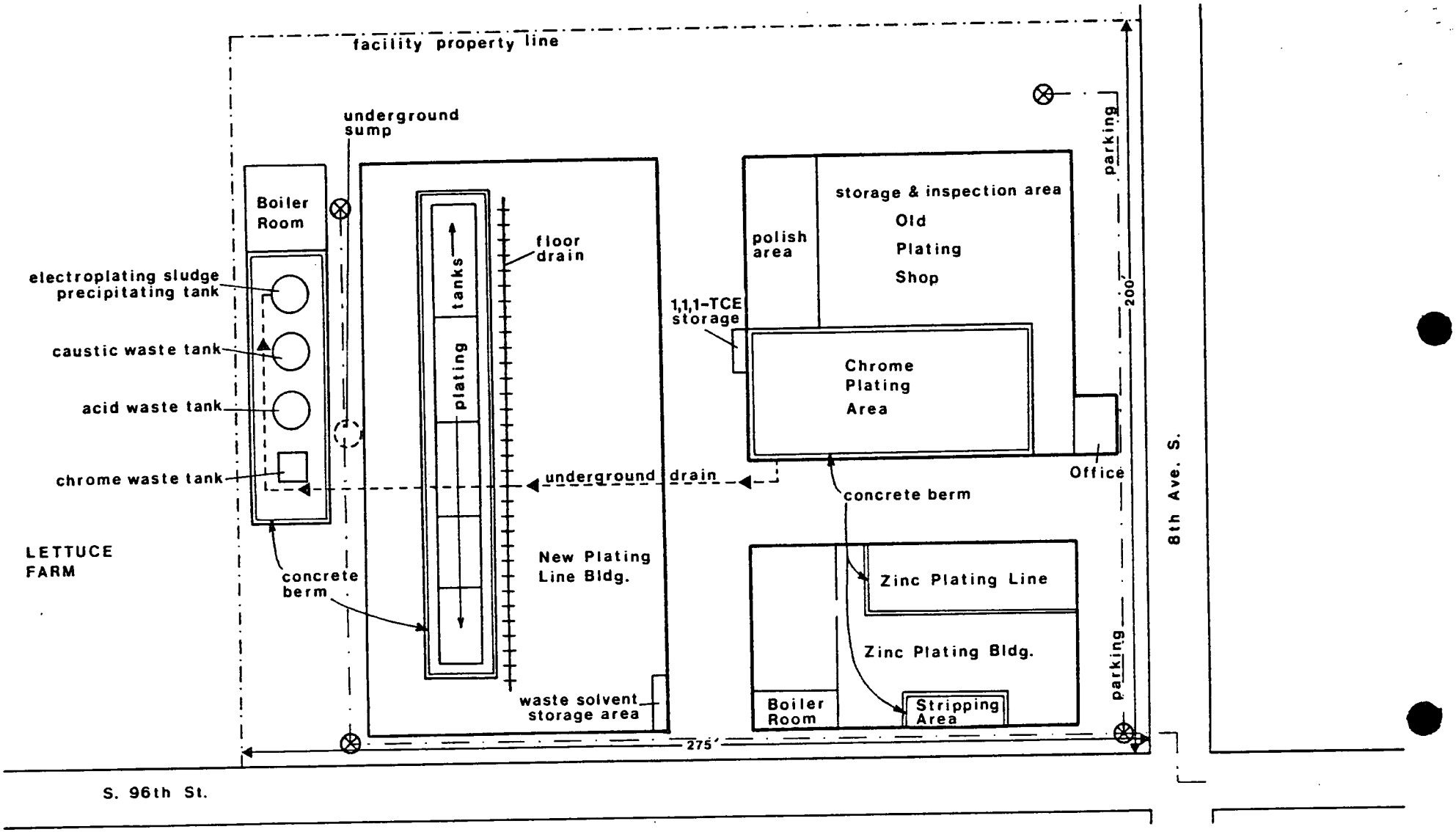
JOB #: R10-8510-21/WA0335	
Drawn by: L. Jowise	Date: 3-7-86

FIGURE 1--Location Map, Advance Electroplating, Inc., Seattle, WA



ecology and environment, inc. SEATTLE, WA	
JOB #: R10-8510-21/WA0335	
Drawn by: D. Pippenger	Date: 5/16/86

FIGURE 2--Vicinity Map, Advance Electroplating, Inc., Seattle, WA



LEGEND

— · — Storm drain

⊗ Catchment basin

N

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JOB #: R10-8510-21, WA0335	
Drawn by: D. Pippenger	Date: 5/6/86

FIGURE 3--Site Map, Advance Electroplating, Inc., Seattle, WA

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6.0 GEOLOGY/HYDROLOGY

6.1 Regional Geology

The site is located within the Puget Sound Lowland: a broad, rolling, glacial drift plain of low relief which is bordered by the Olympic and Cascade Mountain ranges.

The physiographic features of the lowland are primarily the results of the Fraser Glaciation of approximately 15,000 years ago. The sediments deposited during this period are collectively termed Vashon Drift. Four major lithologic units are recognized within the Vashon Drift (Table 1). The lowermost and oldest unit is the Lawton Clay, which is composed of silts and clays. These sediments were deposited into a large proglacial lake that filled much of the region when the glacier blocked the natural northward drainage of the Puget Lowland (5). Overlying the Lawton Clay is the Esperance Sand. The Esperance Sand consists of fine- to medium-grained fluvial and lacustrine sands which were deposited on the plain created after the lake had filled with silt and clay. The last two drift units are the Vashon Outwash and Vashon Till. Vashon Outwash is comprised of coarse-grained sand and gravel deposited by glacial melt-water streams, with advance outwash deposited during glacial advance and recessional outwash during glacial retreat. Between the outwash deposits is Vashon Till. Vashon Till mantles much of the Puget Lowland. Till is a compact, unsorted, heterogeneous mixture of sand, silt, clay, and cobbles deposited directly from glacial ice.

The combined thickness of the four units can reach several hundreds of feet, although non-deposition, or erosion, has left an incomplete, or thinned, stratigraphic section in many locations.

Vashon Drift was laid down on sediments deposited during the preceding interglacial and glacial periods, and onto bedrock. Bedrock is rarely exposed in the lowland and consists of tertiary volcanic and sedimentary rocks. Depth to bedrock is highly variable and can be as deep as 4,000 feet in places (6, 7).

The retreating glacier uncovered a carved landscape of north-south trending hills and deep valleys. Many valleys were filled by marine waters following a global sea level rise. This created the characteristic marine inlets of Puget Sound. Other valleys filled with fresh water, forming lakes, or alluvial deposits, forming flood plains.

TABLE 1

DESCRIPTION OF GEOLOGIC UNITS (7)

Geologic Time Unit	Event	Geologic Unit	Geologic Sub-Unit	Post-Glacial Deposits Description
Pleistocene	Fraser Glaciation	Vashon Drift	Till	Nonsorted, nonstratified sediment carried and deposited by glacial movement.
			Advance Outwash	Rounded sand and gravel, better sorted than till.
			Esperance Sand	Fluvial and lacustrine sands. In places, becomes coarser at top. Usually has transition zone with Lawton Clay.
			Lawton Clay	Lake deposited clay, occasionally grading to silt.
	Olympia Interglaciation			Nonglacial sand, silt, and clay.
Middle Oligocene-Early Miocene		Blakely Formation		Marine tuffaceous sandstone, siltstone, shale.

6.2 Site Geology

The site lies on the floodplain of a glacially-carved valley that, until approximately 5,000 years ago, was an arm of Puget Sound (8). The valley floor was raised above sea level due to aggradation by the Duwamish River, thereby creating the flood plain the site is built upon. Both the Duwamish River and Valley were altered by man to allow for agricultural, livestock, and industrial development. Near the site, the valley floor was raised by the addition of fill over the native material. According to the boring logs in a study in the area of the site (9), the fill averages four feet in thickness and is heterogeneous in composition. The fill is underlain by at least forty feet of flood plain deposits consisting of peat, soft clayey silts, and fine-grained sands. Similar subsurface conditions would be expected under the site.

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6.3 Hydrology

Little site specific information is available concerning local ground water conditions. Ground water was encountered at a depth of approximately ten feet in a test boring at the corner of South 96th Street and 8th Avenue South, next to AEI. By analogy to other parts of the Duwamish Valley, ground water would be expected to flow to the east toward the Duwamish River (9).

7.0 WATER USES

Ground water use in the site vicinity is limited to irrigation of a lettuce farm adjacent (west) to AEI. This water is obtained from a seep in the hillside west of Highway 509, approximately 0.4 miles from AEI (4).

Well logs show only one domestic well within a three-mile radius of AEI. This well is 1.2 miles southeast of the facility, and the elevation of the screened interval is approximately 70 feet above the water table elevation at AEI. Residents and industrial customers within a three-mile radius of AEI are provided with water from Seattle's municipal supply system, whose source is surface water from the western slopes of the Cascade Mountains (10).

The Duwamish River is the nearest body of surface water to AEI. It is used for recreation (fishing, boating) and as a commercial waterway (1).

8.0 CLIMATE

The marine climate of the Seattle area is mild and moderately moist due to the prevailing westerly air currents which move inland from the Pacific Ocean. The winters are comparatively mild (December-February: 47^{o}-37^{o}F) and the summers are cool (June-August: 72^{o}-55^{o}F). The Seattle area receives approximately 39 inches of total precipitation annually with a mean lake evaporation rate of 24 inches. The maximum two-year, 24-hour rainfall is approximately 2.0 inches (11, 12, 13).

9.0 OVERVIEW OF FACILITY/SITE OPERATIONS

9.1 Facility Operations

Operations at Advance Electroplating, Inc. (AEI) consist of a chrome plating line and a zinc plating line housed in separate buildings. A new plating line building, which houses a largely automated chrome plating line, was in use for less than a year before being partially destroyed by a fire of unknown origin on November 20, 1985 (1).

Overviews of the plating processes at AEI are shown in Figure 4. Chemicals and their approximate annual usage are presented in Table 2 (1).

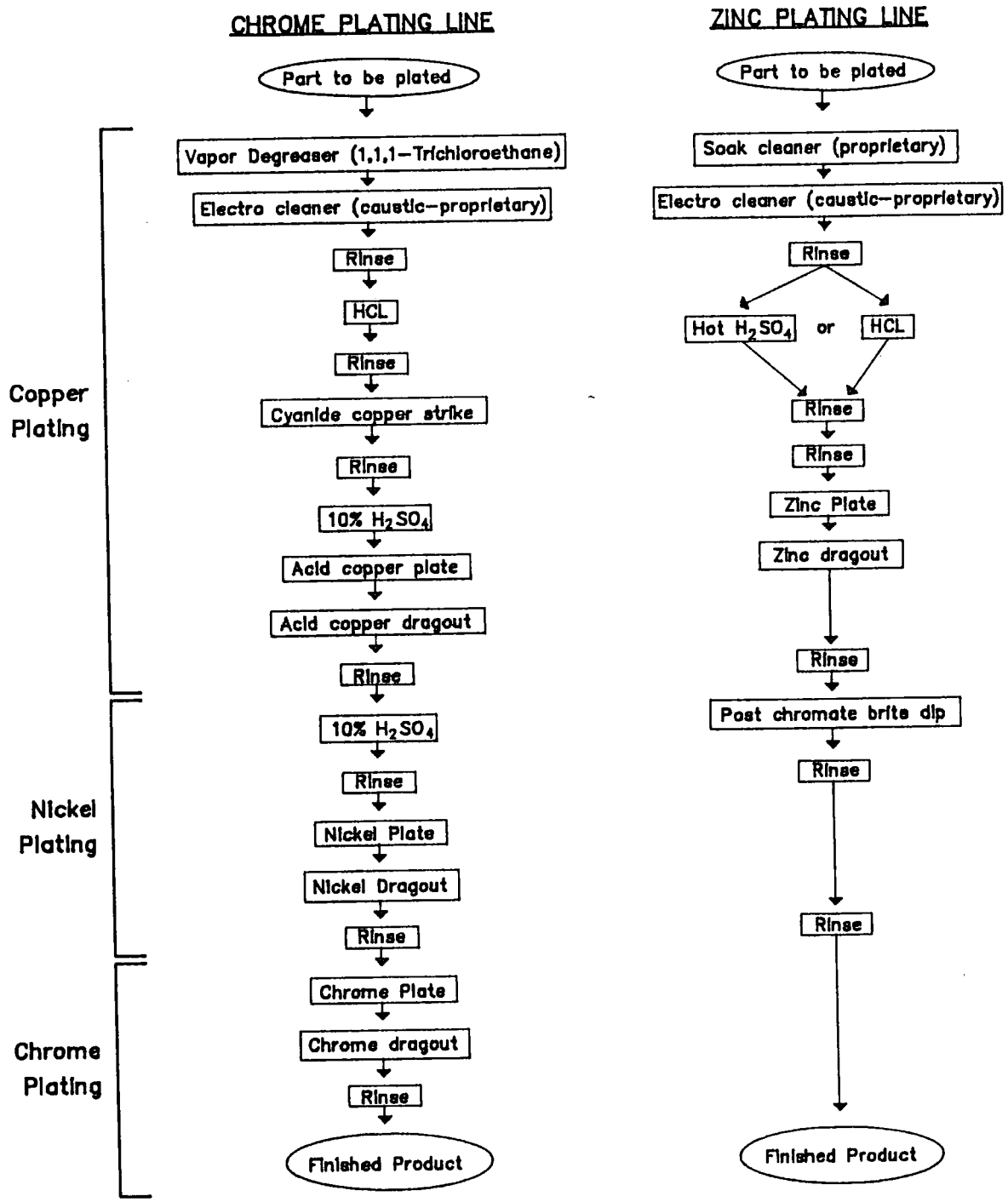

FIGURE 4--Flow Process Chart, Advance Electroplating, Inc., Seattle, WA

TABLE 2

CHEMICALS USED AT
ADVANCE ELECTROPLATING, INC.

Chemical	Approximate Annual Use
Barium Carbonate	25 lbs.
Boric Acid(s)	380 lbs.
Calcium Hypochlorite	150 lbs.
Chromic Acid(s)	1,000 lbs.
Copper Cyanide	40 lbs.
Diethylaminoethanol*	5 gal.
Disodium Phosphate**	50 lbs.
Ethanolamine	55 gal.
Hydrochloric Acid (l)	1,600 gal.
Hydrogen Peroxide	50 gal.
Nickel Chloride	200 lbs.
Nickel Sulfate	2,000 lbs.
Nitric Acid (l)	30 gal.
Sodium Bicarbonate	50 lbs.
Sodium Carbonate	50 lbs.
Sodium Hydroxide (l & s)	5,000 lbs.
Sodium Metabisulfate	200 lbs.
Sodium Potassium Tartrate	350 lbs.
Sodium Sulfide	400 lbs.
Sulfuric Acid (l)	1,000 gal.
1,1,1-Trichloroethane	5,000 gal.
Trisodium Phosphate**	50 lbs.

* Boiler Conditioning Treatment
** Boiler Compound
(l) liquid
(s) solid

SOURCE: Leigh Laney, Advance Electroplating, Inc.
3-6-86 Site Inspection

9.2 Wastes Generated

Wastes generated during metal plating operations at AEI include liquids, sludges, and solids, all of which contain varying concentrations of heavy metals. Estimated annual waste quantities are approximately sixteen barrels of solid electroplating waste materials (shipped as hazardous waste solid, N.O.S.), 10,000 gallons of liquid copper, nickel, and zinc plating waste (shipped as hazardous waste liquid, N.O.S.), 100,000 pounds of liquid/sludge (shipped as hazardous waste sludge, liquid, and solid, N.O.S.), 50,000 pounds of waste chromic acid solution (shipped as hazardous waste, chromic acid solution), and 5,000 pounds of waste solvents (1,1,1-trichloroethane) (1, 14).

10.0 CHARACTERIZATION OF WASTE STREAM(S)

From 1964 until 1981, AEI discharged waste water to a ditch that ran along South 96th Street and eventually emptied into the Duwamish River. This effluent was regulated by a National Pollutant Discharge Elimination System (NPDES) permit until AEI began discharging to a METRO sewer line in September 1981.

From 1964 to the early 1970s, approximately 100 to 150 drums of liquid and solid process wastes were removed from AEI annually by a transporter and were taken to eastern Washington for disposal. During the site inspection Mr. Coleman stated that he had no records or recollection of the name of the transporter or the final destination of the wastes (1).

From 1972 until 1981, an undetermined portion of AEI's wastes were also taken to Western Processing, in Kent, Washington. Table 3 lists waste shipments from AEI to Western Processing (1, 15).

TABLE 3

SHIPMENTS TO WESTERN PROCESSING BY ADVANCE ELECTROPLATING, INC.

Date	Waste Type	Waste Volume
7-13-72	Cyanide Waste	7 drums
5-23-75	Waste Chromic Acid	3 drums
6-26-75	Waste Chromic Acid	3 drums
7-18-75	Cyanide Waste	4 drums
2-25-76	Waste Chromic Acid	6 drums (330 gal.)
3-12-76	Zinc Cyanide Waste	8 drums (440 gal.)
9-10-76	Zinc Cyanide Waste	2 drums (110 gal.)
9-07-78	Cyanide Waste	5 drums (275 gal.)
8-19-80	Copper Cyanide Waste	6 drums (330 gal.)
9-10-80	Copper Cyanide Waste	6 drums (330 gal.)
6-19-81	Spent Nickel Strip	4 drums (220 gal.)
7-16-81	Spent Nickel Strip	1 drum (55 gal.)

Waste manifests supplied by AEI show that liquid chrome plating wastes are currently transported from AEI by Georgia-Pacific. All other electroplating liquids and sludges are collected by Northwest Enviroservice, Inc., and transported to Arlington, Oregon. Baron-Blakeslee, Inc. collects and recycles waste 1,1,1-trichloroethane for AEI (1).

While the November 1985 fire in the new plating line building was being extinguished, approximately 6,750 gallons of chromic acid waste water were generated. This waste was contained within the building's drain system and sump and was later transported from the facility by Georgia-Pacific (1, 2).

11.0 SITE INSPECTION BY E&E

On March 6, 1986, E&E representatives performed a site inspection of Advance Electroplating, Inc. (AEI). Carolyn Wilson of EPA Region X and Michael Spencer of Ecology also participated. Representatives for AEI included Boyd Coleman, Vice President of AEI, and Leigh Laney, Pollution Control Engineer. Mr. Coleman led the group on a tour of the facility. Photographs were taken (Appendix A) and a site inspection report form was completed (Appendix B).

The November 1985 fire heavily damaged the southwest corner of the new plating line building, leaving the plating line inoperable (photo nos. 4 & 5). The majority of the building is now used as a storage area for parts to be plated (photo no. 9).

The waste solvent storage area located in the southeast corner of this building is not bermed but is located over a sloped floor which drains to an underground sump (photo no. 11). The November 1985 fire partially melted several plastic carboys in the solvent storage area (photo no. 12), but there were no reported leaks from any of the containers.

Several drums were being stored along the south wall of the building. Mr. Coleman stated that these drums contained waste generated during the fire. He said that as soon as the solids had settled out AEI would dispose of the waste according to regulations.

Outdoor waste storage tanks are located along the west edge of the site, adjacent to the new plating line building. These tanks include a precipitating tank (with a conical bottom) used for dewatering all sludges except chrome plating sludge, a caustic waste tank, an acid waste tank, a chrome waste tank (being repaired at an off-site location during the site inspection), and an underground sump (approx. 1,000 gal.) used for spill containment in the new building (photo nos. 2 & 3). Waste 1,1,1-trichloroethane is stored along the east wall of the old plating shop (photo no. 13).

The integrity of the berms in the old plating shop and the zinc plating building appeared adequate. It appeared as though a small spill of plating solution had recently occurred within the bermed area in the zinc plating building.

In about 1980, an underground storm sewer system was installed along South 96th Street. It discharges to an open ditch several blocks northeast of AEI which then empties into the Duwamish River (4).

Additional information from the site inspection shows that on April 5, 1984, construction workers installing a new storm sewer system adjacent to the west side of the new plating line building encountered a strong solvent odor at a depth of approximately 3-4 feet (16).

12.0 SAMPLING RESULTS AND DISCUSSION

12.1 Previous Sampling

On February 14, 1980, METRO collected effluent samples from AEI every one-half hour over a 24-hour period. Results showed that NPDES effluent limitations for heavy metals content were exceeded on several occasions during the 24-hour period. Table 4 (following page) shows the effluent limitations and requirements listed in AEI's NPDES permit (17).

On July 23, 1981, two samples of effluent from AEI were collected by Ecology. Sample A was collected from a catchbasin at the southeast corner of the property. Sample B was collected from a catchbasin 80 feet north of sample location A. Analytical results are presented in Table 5 (18). These results show that limits were exceeded for Cadmium, Chromium, Copper, Nickel, and Zinc, as per Table 4.

TABLE 5

ECOLOGY SAMPLE RESULTS OF EFFLUENT FROM ADVANCE ELECTROPLATING, INC.
(mg/l)

Parameter	Discharge Site Site A	Site B
Cadmium	0.01*	0.82
Chromium	1.7	0.26
Copper	1.2	1.3
Lead	0.02*	0.66
Nickel	0.84	5.9
Zinc	3.2	5.7
Total Cyanide (as CN)	0.13	0.002

*the element was not detected at or below this limit

AEI has had several METRO violations for heavy metals since their sewer connection in 1981. The most serious violation was a spill of approximately ten gallons of nickel plating solution containing ten ounces/gallon (78,000 mg/l) of nickel to the sewer line on December 27, 1982. This violation resulted in an $800 fine from METRO (19, 20).

12.2 E&E Sampling Program

Sampling was not performed as part of the site inspection for the following reasons: wastes currently generated at AEI are not disposed of on-site (i.e., the present and future contamination potential appears to be very low); contaminated sediments in the old ditch, if present, have been buried and pose minimal risk if left undisturbed; and there are no ground water or surface water target populations in the vicinity of the site.

TABLE 4

1979 NPDES PERMIT LIMITS & REQUIREMENTS (16)

	EFFLUENT LIMITATIONS		MONITORING REQUIREMENTS	
Parameter	Daily Average	Daily Maximum	Minimum Frequency	Sample Type
Flow (gpd)	103,000	105,000	Monthly	Calculate
Temperature (^{o}F)	65	70	Daily	Grab
pH	Not outside the range 6.5 - 8.5		Daily	Grab
Heavy Metals (mg/l)			Twice Monthly	4-hr. composite
Cadmium		0.75 (0.66 lb/day)		
Chromium		0.75 (0.66 lb/day)		
Copper		1.25 (1.10 lb/day)		
Nickel		1.25 (1.10 lb/day)		
Zinc		1.25 (1.10 lb/day)		
Cyanide (mg/l)	0.50		Twice Monthly	4-hr. composite
Total Oils (mg/l)	10 (none visible)	15	Monthly	4-hr. composite

The daily average is defined as the average of the measured values obtained over a calendar month's time. The daily maximum is defined as the greatest allowable value for any calendar day.

12.3 Discussion

Past NPDES and METRO violations show that between 1964 and 1981, AEI discharged waste water containing heavy metals to a ditch and, later, to a storm drain, both of which discharged to the Duwamish River. As a result, sediments in the ditch and the river may have been contaminated with heavy metals.

No ditch currently exists along South 96th Street near AEI. It was likely filled in when the storm sewer system was installed. For this reason, any contaminants which may exist in the old ditch sediments may now be buried.

AEI may have contaminated on-site soil around the plating shops before the site was completely paved. The solvent odor detected by sewer construction workers in 1984 may have resulted from such practices or from spills or leaks from any on-site solvent tanks which may have been located in the area.

Although the 1981 sewer connection alleviated the source of potential contamination to the ditch and river, the possibility does exist for ground water contamination from downward migration of contaminants which may be present in the old ditch. However, ground water is not used in the site vicinity and there is no chance that the nearest well (1.2 miles southeast) could become contaminated since its screened interval is 70 feet higher than the water table at AEI.

13.0 CONCLUSIONS

From information gathered during the site inspection, it appears that Advance Electroplating, Inc. (AEI) does not currently pose a serious threat to public health or the environment.

Contamination of the Duwamish River and a ditch along South 96th Street with heavy metals likely occurred from 1964 until 1981, but, with the connection of the METRO sewer, AEI eliminated the potential for waste water to enter the surrounding environment. The ditch along South 96th Street has been filled in, thus burying potentially contaminated sediments. If left undisturbed, these sediments would pose a minimum health risk. All spent electroplating solutions, sludges, and solids generated by AEI are currently transported from the facility.

Finally, the potential for ground water contamination exists, but there are no target populations in the site vicinity.

REFERENCES

1. Ecology & Environment, Inc. (E&E), Site Inspection of Advance Electroplating, Inc., March 6, 1986.

2. Phone conversations with T. Boyd Coleman, Vice President of Advance Electroplating, Inc. (AEI), March 1986.

3. U.S. Geological Survey (USGS), Seattle South Quadrangle and Des Moines, Washington Quadrangle, 7.5 minute series, (photo revised 1968 and 1973).

4. Personal communication with Lou Gagliardi, Lessee of Lettuce Farm West of AEI, March 10, 1986.

5. Mullineaux, D.R., H.H. Waldron, and Rubin Meyer, 19685, Stratigraphy and Chronology of Late Interglacial and Early Vashon Glacial Time in the Seattle Area, Washington, USGS Bulletin, 11940-0, 10 pp.

6. Hall, J.B. and K.L. Othberg, 1974, Thickness of Unconsolidated Sediments, Puget Lowland, Washington: Washington State Division of Geology and Earth Resources Geologic Map GM-12.

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8. Mullineaux, D.R., 12970, Geology of the Renton, Auburn, and Black Diamond Quadrangles, King County, Washington: USGS Professional Paper 672, 92 pp.

9. TCW Associates, March 1986, Geotechnical Studies and Recommendations: S. 96th Street/Des Moines Way S. Improvement Conducted for METRO.

10. Seattle Water Department, 1984. The Seattle Water System, Office of Conservation, 821 Second Ave., Seattle, Washington 98104.

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14. Generator Annual Waste Report, 1985, Advance Electroplating, Inc.

15. Written Communication from Harris & Mericle, Attorneys at Law. Shipments to Western Processing Company by: Advance Electroplating, Inc., Date Unknown.

16. Phone conversation with Julie Sellick, Ecology, May 9, 1986.

17. Mauermann, Ken, March 12, 1980, WDOE Memorandum: Advance Electroplating, Illegal Discharge of Metal Finishing Wastes to a Ditch Tributary to the Duwamish River.

18. Dawha, M.M., August 12, 1981. WDOE Memorandum: Recommendations for Enforcement Action, Advance Electroplating, Company, Seattle. NPDES Permit WA-000172-4.

19. Healy, Denise, January 14, 1983. METRO Memorandum: Nickel Spill to Sewer 12/27/82.

20. METRO Monitor, October 1984. Illegal Dischargers Fined, p. 7.

APPENDIX A

PHOTODOCUMENTATION SHEET

PHOTO IDENTIFICATION SHEET

TYPE OF CAMERA: Nikon FG (w/35-105mm Zoom)
TYPE OF FILM: Ektachrome 200

TDD NO.: R10-8510-21
SITE NAME: Advance Electroplating

Frame No.	Roll No.	Date	Time	Taken By	Witnessed By	Description of Photo	Direction
1	1	03/06/86	1048	T.Tobin	J.Whidden	Entrance to facility	W
2	1	03/06/86	1051	T.Tobin	J.Whidden	Electroplating sludge precipitating tank (on left)	NW
3	1	03/06/86	1051	T.Tobin	J.Whidden	Waste solution tanks in bermed area	NW
4	1	03/06/86	1054	T.Tobin	J.Whidden	SW corner of new plating line building that was heavily damaged in Nov. 1985	NE
5	1	03/06/86	1054	T.Tobin	J.Whidden	SW corner of new plating line building that was heavily damaged in Nov. 1985	NE
6	1	03/06/86	1058	T.Tobin	J.Whidden	Inside of new plating line building - most tanks in background are full of plating solutions	NW
7	1	03/06/86	1058	T.Tobin	J.Whidden	Inside of new plating line building - most tanks in background are full of plating solutions	W-NW
8	1	03/06/86	1100	T.Tobin	J.Whidden	Concrete berm surrounding plating tanks in new plating line buildling	NW
9	1	03/06/86	1105	T.Tobin	J.Whidden	Stacks of materials to be plated - currently stored inside new plating line building	N
10	1	03/06/86	1105	T.Tobin	J.Whidden	Drummed wastes from new plating line building	SW
11	1	03/06/86	1105	T.Tobin	J.Whidden	Waste solvent storage area in new plating line building	SE
12	1	03/06/86	1115	T.Tobin	J.Whidden	Plastic carboy containing acid. Fire melted outside of container, but it did not leak.	--
13	1	03/06/86	1125	T.Tobin	J.Whidden	Alley between chrome and zinc plating buildings	E
14	1	03/06/86	1125	T.Tobin	J.Whidden	Degreasing tank w/fluid flowing along tank bottom	--
15	1	03/06/86	1128	T.Tobin	J.Whidden	Interior of old plating shop - in operation	NE
16	1	03/06/86	1128	T.Tobin	J.Whidden	Interior of old plating shop - in operation	S
17	1	03/06/86	1128	T.Tobin	J.Whidden	Interior of old plating shop - in operation	SE
18	1	03/06/86	1129	T.Tobin	J.Whidden	Polish area - old plating shop	N
19	1	03/06/86	1132	T.Tobin	J.Whidden	Interior of old plating shop	--
20	1	03/06/86	1132	T.Tobin	J.Whidden	Interior of old plating shop	--
21	1	03/06/86	1135	T.Tobin	J.Whidden	Zinc plating tanks and surrounding berm - zinc plating building	W
22	1	03/06/86	1138	T.Tobin	J.Whidden	Aerial view of Advance Electroplating from the east. 8th Avenue S. in foreground; S. 96th Street on left; lettuce farm in background.	W

APPENDIX B
EPA FORM 2070-13

24

ecology and environment, inc.

108 SOUTH WASHINGTON, SUITE 302, SEATTLE, WASHINGTON 98104, TEL. 206-624-9537

International Specialists in the Environmental Sciences

Purpose: Site Inspection Form
EPA Form 2070-13

Site: Advance Electroplating, Inc.
Seattle, WA

Date of Inspection: March 6, 1986

TDD Number: R10-8510-21

FIT Investigators: Jeff Whidden
Thomas Tobin

Report Prepared By: Jeff Whidden

Report Date: May, 1986

Submitted to: John Osborn, RPO
Field Operations and Technical Support Branch
U.S. Environmental Protection Agency
Region X
Seattle, WA

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 1 - SITE LOCATION AND INSPECTION INFORMATION

I. IDENTIFICATION	
01 State: WA	02 Site Number: D009278847

II. SITE NAME AND LOCATION

01 Site Name (Legal, common, or descriptive name of site)	02 Street, Route No., or Specific Location Identifier				
Advance Electroplating, Inc.	9585 - 8th Avenue S.				
03 City	**04 State**	**05 Zip Code**	**06 County**	**07 County Code**	**08 Cong Dist**
Seattle,	WA	98108	King	033	06

09 Coordinates Latitude	Longitude	10 Type of Ownership (Check one)
47 31 03.0	122 19 32.0	[X] A. Private [ ] B. Federal _____ [ ] C. State [ ] D. County [ ] E. Municipal [ ] F. Other _____ [ ] G. Unknown

III. INSPECTION INFORMATION

01 Date of Inspection	02 Site Status	03 Years of Operation
03 / 06 / 86 (Month Day Year)	[X] Active [ ] Inactive	1964 (Beginning Year) | Present (Ending Year) | _____ Unknown

04 Agency Performing Inspection (Check all that apply)
[X] A. EPA [X] B. EPA Contractor Ecology & Environment, Inc (Name of firm) [ ] C. Municipal [ ] D. Municipal Contractor _____ (Name of firm)
[X] E. State [ ] F. State Contractor _____ (Name of firm) [ ] G. Other _____ (Specify)

05 Chief Inspector	06 Title	07 Organization	08 Telephone No.
Jeff Whidden	Field Investigator	E&E	(206) 624-9537
09 Other Inspectors	**10 Title**	**11 Organization**	**12 Telephone No.**
Thomas Tobin	Field Investigator	E&E	(206) 624-9537
Carolyn Wilson	Project Officer	USEPA	(206) 442-1632
Michael Spencer	Field Investigator	WDOE	(206) 459-6516

13 Site Representatives Interviewed	14 Title	15 Address	16 Telephone No.
Boyd Coleman	Vice President	9585 - 8th Avenue S. Seattle, WA 98108	(206) 762-2340
Leigh Laney	Pollution Control Engineer	9585 - 8th Avenue S. Seattle, WA 98108	(206) 762-2390
			( )
			( )
			( )

17 Access Gained By (Check one)	18 Time of Inspection	19 Weather Conditions
[X] Permission [ ] Warrant	0900-1300 hrs.	Broken Clouds

IV. INFORMATION AVAILABLE FROM

01 Contact	02 Of (Agency/Organization)	03 Telephone No.
Debbie Flood	U.S. Environmental Protection Agency	(206) 442-2722

04 Person Responsible for Site Inspection Form	05 Agency	06 Organization	07 Telephone No.	08 Date
Jeff Whidden	EPA/FIT	E&E	(206)624-9537	05 / 23 / 86 (Month Day Year)

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 State	02 Site Number
WA	D009278847

II. WASTE STATES, QUANTITIES, AND CHARACTERISTICS

01 Physical States (Check all that apply)

- [ ] A. Solid
- [ ] B. Powder, Fines
- [X] C. Sludge
- [ ] D. Other (Specify)
- [ ] E. Slurry
- [X] F. Liquid
- [ ] G. Gas

02 Waste Quantity at Site (Measure of waste quantities must be independent)

Tons Unknown
Cubic Yards
No. of Drums

03 Waste Characteristics (Check all that apply)

- [X] A. Toxic
- [X] B. Corrosive
- [ ] C. Radioactive
- [X] D. Persistent
- [ ] E. Soluble
- [ ] F. Infectious
- [ ] G. Flammable
- [X] H. Ignitable
- [ ] I. Highly Volatile
- [ ] J. Explosive
- [ ] K. Reactive
- [ ] L. Incompatible
- [ ] M. Not Applicable

III. WASTE TYPE

Category	Substance Name	01 Gross Amount	02 Unit of Measure	03 Comments
SLU	Sludge	100,000	lbs./yr.	contains metal
OLW	Oily Waste			
SOL	Solvents	5,000	lbs./yr.	degreasing solvents - recycled off-site
PSD	Pesticides			
OCC	Other Organic Chemicals			
IOC	Inorganic Chemicals	Unknown		cyanides in plating baths, used in electroplating process
ACD	Acids			
BAS	Bases	Unknown		caustic used to neutralize effluent
MES	Heavy Metals	Unknown		low concentrations to sewer

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers)

01 Category	02 Substance Name	03 CAS Number	04 Storage/Disposal Method	05 Concentration	06 Measure of Concentration
SOL	Trichloroethylene	79016	Unknown	N/A	N/A
SOL	Methylene Chloride	75092	Unknown	N/A	N/A
SLU	Cu, Zn, Ni, Cr, Cd	UNK	transported from site	UNK	N/A
MES	Nickel compounds	UNK	1982 spill to sewer	10.0	oz/gal
MES	Zinc compounds	UNK	Discharge to sewer	4.2	mg/l
MES	Nickel compounds	UNK	Discharge to sewer	4.1	mg/l
MES	Copper compounds	UNK	Discharge to sewer	3.0	mg/l
MES	Chromium compounds	UNK	Discharge to sewer	6.0	mg/l
MES	Cadmium compounds	UNK	Discharge to sewer	1.2	mg/l
IOC	Cyanide compounds	UNK	Discharge to sewer	1.9	mg/l

*** ENVIRONMENTAL RELEASE DATA ***

SEE NEXT PAGE FOR CONTINUATION

V. FEEDSTOCKS (See Appendix for CAS Numbers)

Category	01 Feedstock Name	02 CAS Number	Category	01 Feedstock Name	02 CAS Number
FDS	Chromic Acid	11115745	FDS	Sodium Cyanide	143339
FDS	Caustic Soda	1310732	FDS	Nitric Acid	7697372
FDS	Sulfuric Acid	7664939	FDS	Nickel Sulfate	7786814
FDS	Muriatic Acid	7647010	FDS		

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Ecology and Environment, Inc. Site Inspection (3/06/86).
Preliminary Assessment, SAIC (3/16/85);
METRO Permit Application (1977), METRO Permit #7221 (1984).

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 2 - WASTE INFORMATION

I. IDENTIFICATION	
01 State	02 Site Number
WA	D009278847

IV. HAZARDOUS SUBSTANCES (See Appendix for most frequently cited CAS Numbers) (CONTINUED)

01 Category	02 Substance Name	03 CAS Number	04 Storage/Disposal Method	05 Concentration	06 Measure of Concentration
	*** ENVIRONMENTAL RELEASE DATA ***				
MES	Copper compounds	UNK	Discharge to catchbasin	4.38	mg/l
MES	Chrome compounds	UNK	Discharge to catchbasin	6.44	mg/l
MES	Zinc compounds	UNK	Discharge to catchbasin	5.70	mg/l
MES	Nickel compounds	UNK	Discharge to catchbasin	5.90	mg/l
MES	Cadium compounds	UNK	Discharge to catchbasin	0.82	mg/l

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 State: WA	02 Site Number: D009278847

II. HAZARDOUS CONDITIONS AND INCIDENTS

01 [X] A. Groundwater Contamination — 02 [ ] Observed (Date:) [X] Potential [ ] Alleged
03 Population Potentially Affected: 0 — 04 Narrative Description

Potential for ground water contamination via leaching of contaminants which may be present in old ditch sediments along S. 96th Street. Ground water contamination potential also exists on-site as a result of possible spills which may have occurred. However, since the site is paved, leaching would be inhibited.

01 [X] B. Surface Water Contamination — 02 [ ] Observed (Date:) [X] Potential [ ] Alleged
03 Population Potentially Affected: — 04 Narrative Description

Process waste water from AEI was discharged to a ditch along S. 96th Street, which in turn emptied into the Duwamish River. This occurred from 1964 until 1981, when AEI was connected to a METRO sewer line. Waste waters containing cadmium, chromium, copper, nickel, zinc, lead, and cyanide were discharged according to an NPDES permit.

01 [ ] C. Contamination of Air — 02 [ ] Observed (Date:) [ ] Potential [ ] Alleged
03 Population Potentially Affected: — 04 Narrative Description

None reported.

01 [X] D. Fire/Explosive Conditions — 02 [X] Observed (Date: 11/20/85) [ ] Potential [ ] Alleged
03 Population Potentially Affected: — 04 Narrative Description

Fire 11/20/85 - origin unknown. Fire destroyed the southern portion of the new plating line building.

01 [ ] E. Direct Contact — 02 [ ] Observed (Date:) [ ] Potential [ ] Alleged
03 Population Potentially Affected: — 04 Narrative Description

None reported.

01 [X] F. Contamination of Soil — 02 [ ] Observed (Date:) [X] Potential [ ] Alleged
03 Area Potentially Affected (Acres:) — 04 Narrative Description

Sediments in ditch (now filled in) may have been contaminated by inorganic compounds (cadmium, chromium, copper, nickel, zinc, and lead) which were present in waste water discharged to the ditch from 1965 until 1981.

01 [ ] G. Drinking Water Contamination — 02 [ ] Observed (Date:) [ ] Potential [ ] Alleged
03 Population Potentially Affected: 0 — 04 Narrative Description

None reported or suspected. There are no ground water or surface water uptakes for drinking water which could be contaminated by compounds released at AEI. The nearest drinking water well is 1.2 miles S.E. of AEI, but screened zone is 70 feet higher than water table at AEI.

01 [ ] H. Worker Exposure/Injury — 02 [ ] Observed (Date:) [ ] Potential [ ] Alleged
03 Workers Potentially Affected: — 04 Narrative Description

None reported.

01 [ ] I. Population Exposure/Injury — 02 [ ] Observed (Date:) [ ] Potential [ ] Alleged
Population Potentially Affected: — 04 Narrative Description

None reported. Plating facilities are all enclosed within buildings. Site is fenced.

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 3 - DESCRIPTION OF HAZARDOUS CONDITIONS AND INCIDENTS

I. IDENTIFICATION	
01 State	02 Site Number
WA	D009278847

II. HAZARDOUS CONDITIONS AND INCIDENTS (Continued)

01 ☐ J. Damage to Flora — 02 ☐ Observed (Date: _____) ☐ Potential ☐ Alleged
04 Narrative Description

None reported.

01 ☐ K. Damage to Fauna — 02 ☐ Observed (Date: _____) ☐ Potential ☐ Alleged
04 Narrative Description

None reported.

01 ☐ L. Contamination of Food Chain — 02 ☐ Observed (Date: _____) ☐ Potential ☐ Alleged
04 Narrative Description

None reported.

01 ☐ M. Unstable Containment of Wastes (Spills/Runoff/Standing liquids, Leaking drums) — 02 ☐ Observed (Date: _____) ☐ Potential ☐ Alleged
03 Population Potentially Affected: _____ 04 Narrative Description

None reported or observed.

01 ☐ N. Damage to Offsite Property — 02 ☐ Observed (Date: _____) ☐ Potential ☐ Alleged
04 Narrative Description

None reported.

01 ☒ O. Contamination of Sewers, Storm/Drains, WWTPs — 02 ☒ Observed (Date: several) ☐ Potential ☐ Alleged
04 Narrative Description

METRO records show that limits for nickel, chrome, copper, and zinc have been exceeded on several occasions. See METRO files for specific incidents. Ecology samples collected in July 1981 from storm sewer catchbasins showed heavy metal levels exceeding state water quality criteria.

01 ☐ P. Illegal/Unauthorized Dumping — 02 ☐ Observed (Date: _____) ☐ Potential ☐ Alleged
04 Narrative Description

None reported.

05 Description of Any Other Known, Potential, or Alleged Hazards

On April 5, 1984, sewer construction workers encountered a strong solvent odor eminating from soil while installing a sewer system near AEI. The odor was encountered at a depth of 3-4 feet. The ditch was filled in by the construction crew before Ecology inspectors arrived.

III. TOTAL POPULATION POTENTIALLY AFFECTED: 0

IV. COMMENTS

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Ecology and Environment, Inc. Site Inspection (3/06/86); EPA Consolidated Files; METRO files; NPDES Permit; WDOE Environmental Complaint Form; WDOE Files.

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 4 - PERMIT AND DESCRIPTIVE INFORMATION

I. IDENTIFICATION	
01 State	02 Site Number
WA	D009278847

II. PERMIT INFORMATION

01 Type of Permit Issued (Check all that apply)	02 Permit Number	03 Date Issued	04 Expiration Date	05 Comments
[X] A. NPDES	WA-000172-4(I)	10/10/79	07/08/80	No longer applicable. All process waste water is discharged to METRO sewer.
[ ] B. UIC				
[X] C. AIR	10043	02/14/86		Puget Sound Air Pollution Control Agency - paid Generator #: WAD009278847.
[ ] D. RCRA				
[ ] E. RCRA INTERIM STATUS				
[ ] F. SPCC PLAN				
[ ] G. STATE (Specify)				
[ ] H. Local METRO	7221	12/10/84	12/09/89	
[ ] I. Other (Specify)				
[ ] J. None				

III. SITE DESCRIPTION

01 Storage/Disposal (Check all that apply)	02 Amount	03 Unit of Measure
[ ] A. Surface Impoundment		
[ ] B. Piles		
[X] C. Drums, Above Ground	up to 15	55 gal. drum
[ ] D. Tank, Above Ground		
[X] E. Tank, Below Ground **	1000	gallons
[ ] F. Landfill		
[ ] G. Landfarm		
[ ] H. Open Dump		
[ ] I. Other (Specify)		

04 Treatment (Check all that apply)

- [ ] A. Incineration
- [ ] B. Underground Injection
- [ ] C. Chemical/Physical
- [ ] D. Biological
- [ ] E. Waste Oil Processing
- [X] F. Solvent Recovery *
- [ ] G. Other Recycling/ Recovery
- [ ] H. Other (Specify)

05 Other

- [X] A. Buildings On Site: 3

06 Area of Site

1.25 Acres

07 Comments

* By Baron-Blakeslee, Inc.
** Sump (for spill collection - under floor of new building) 1000 gal. capacity
Waste Solvents: 1 drum/month to Baron-Blakeslee, Inc. for recycling.

IV. CONTAINMENT

01 Containment of Wastes (Check one)

[X] A. Adequate, Secure * [ ] B. Moderate [ ] C. Inadequate, Poor [ ] D. Insecure, Unsound, Dangerous

02 Description of Drums, Diking, Liners, Barriers, etc.

All plating operations are contained within bermed areas. Waste solvents are stored in 55 gallon drums; inside new plating line building, there are a few.
* Present Containment of wastes appeared secure during Site Inspection. Prior to connection to the sanitary sewer, waste water was discharged to an unlined ditch that discharged to the Duwamish River.

V. ACCESSIBILITY

01 Waste Easily Accessible: [ ] Yes [X] No

02 Comments: All wastes are stored either in drums inside new plating line building, or in large above-ground tanks. The site is fenced.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Ecology and Environment, Inc. Site Inspection (3/06/86);
USEPA Consolidated Files.

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION	
01 State	02 Site Number
WA	D009278847

II. DRINKING WATER SUPPLY

01 Type of Drinking Supply (Check as applicable)

	SURFACE	WELL
Community	A. [X]	B. [ ]
Non-Community	C. [ ]	D. [X]

02 Status

	ENDANGERED	AFFECTED	MONITORED
Community	A. [ ]	B. [ ]	C. [ ]
Non-Community	D. [ ]	E. [ ]	F. [ ]

03 Distance to Site

A. 3 (mi)

B. 1.2 (mi)

III. GROUNDWATER

01 Groundwater Use in Vicinity (Check one)

[ ] A. Only Source for Drinking

[ ] B. Drinking (Other sources available) Commercial, Industrial, Irrigation (No other water sources available)

[X] C. Commercial, Industrial, Irrigation (Limited other sources available)

[ ] D. Not Used, Unuseable

IRRIGATION ONLY

02 Population Served by Ground Water Approx. 12

03 Distance to Nearest Drinking Water Well > 3 (mi)

04 Depth to Groundwater	05 Direction of Groundwater Flow	06 Depth to Aquifer of Concern	07 Potential Yield of Aquifer	08 Sole Source Aquifer
≈ 10 (ft)	E-NE	10 (ft)	N/A (gpd)	N/A [ ] Yes [ ] No

09 Description of Wells (Including useage, depth, and location relative to population and buildings)

Nearest well is ≈1.2 miles SE (SE1/4, SW1/4, Sec. 4, T.23N, R.4E). Depth is 20 feet, domestic use. Elevation of screened interval is at least 70 feet above water table in vicinity of AEI.

10 Recharge Area		11 Discharge Area	
[X] Yes	Comments	[X] Yes	Comments: 0.8 miles east of site, into Duwamish River
[ ] No		[ ] No	

IV. SURFACE WATER

01 Surface Water (Check one)

[X] A. Reservior, Recreation Drinking Water Source

[ ] B. Irrigation, Economically Important Resources

[ ] C. Commercial, Industrial

[ ] D. Not Currently Used

02 Affected/Potentially Affected Bodies of Water

Name:	Affected	Distance to Site
Duwamish River	[ ]	0.8 (mi)
	[ ]	(mi)
	[ ]	(mi)

V. DEMOGRAPHIC AND PROPERTY INFORMATION

01 Total Population Within

One (1) Mile of Site	Two (2) Miles of Site	Three (3) Miles of Site
A. 9,254 No. of Persons	B. 35,223 No. of Persons	C. 93,438 No. of Persons

02 Distance to Nearest Population

< 0.1 (mi)

03 Number of Buildings Within Two (2) Miles of Site

> 8,000

04 Distance to Nearest Off-Site Building

< 0.1 (mi)

05 Population Within Vicinity of Site (Provide narrative description of nature of population within vicinity of site, e.g., rural, village, densely populated urban area)

The area in the immediate vicinity of the site is primarily industrial. Nearly 100,000 people live within a 3-mile radius of the site.

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 5 - WATER, DEMOGRAPHIC, AND ENVIRONMENTAL DATA

I. IDENTIFICATION	
01 State	02 Site Number
WA	D009278847

ENVIRONMENTAL INFORMATION

01 Permeability of Unsaturated Zone (Check one)

☐ A. 10^{-6} - 10^{-8} cm/sec ☐ B. 10^{-4} - 10^{-6} cm/sec ☒ C. 10^{-4} - 10^{-3} cm/sec ☐ D. Greater Than 10^{-3} cm/sec

02 Permeability of Bedrock (Check one) Unknown

☐ A. Impermeable (Less than 10^{-6} cm/sec) ☐ B. Relatively Impermeable (10^{-4} - 10^{-6} cm/sec) ☐ C. Relatively Permeable (10^{-2} - 10^{-4} cm/sec) ☐ D. Very Permeable (Greater Than 10^{-2} cm/sec)

03 Depth to Bedrock	04 Depth of Contaminated Soil Zone	05 Soil pH
Unknown (ft)	Unknown (ft)	N/A

06 Net Precipitation	07 One Year 24 Hour Rainfall	08 Slope: Site Slope	Direction of Site Slope	Terrain Average Slope
24 (in)	2.0 (in)	1.8 %	East	1.8 %

09 Flood Potential: Site is in 100 Year Floodplan

10 ☐ N/A Site is on Barrier Island, Coastal High Hazard Area, Riverine Floodway

11 Distance to Wetlands (5 acre minimum)

ESTUARINE: A. > 3 (mi)

OTHER: B. > 3 (mi)

12 Distance to Critical Habitat (of endangered species): N/A (mi)

Endangered Species:

13 Land Use in Vicinity

Distance to:

COMMERCIAL/INDUSTRIAL	RESIDENTIAL AREAS; NATIONAL/STATE PARKS, FORESTS, OR WILDLIFE RESERVES	PRIME AG LAND	AG LAND
A. Adjacent (mi)	B. .1 (mi)	C. 3 (mi)	D. Adjacent (mi)

14 Description of Site in Relation to Surrounding Topography

to SW of site - Ace Galvanizing Plant
to W of site - Farm - (Lettuce) adjacent
to W of site - Machine Shops (W. of farm)
to N of site - Pure Water Company
to NE of site - Sandblasting Company
to E of site - Fruehauf Corporation (semi-trailer repair)
to SE of site - Container Repair

VII. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Ecology and Environment, Inc. (3/06/86); 1980 Census of Population and Housing - U.S. Dept. of Commerce; Geotechnical Studies and Recommendations, S. 96th Street/Des Moines Way S. Improvement, TCW Associates, Inc. (3/86); NOAA (1983), Local Climatological Data Sheet, Seattle, WA; U.S. Dept. of Commerce (1973), Precipitation Frequency Atlas of the Western Washington States, #0317-00163; U.S. Dept. of Commerce (1968), Climatic Atlas of the United States.

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 6 - SAMPLE AND FIELD INFORMATION

I. IDENTIFICATION	
01 State	02 Site Number
WA	D009278847

II. SAMPLES TAKEN

Sample Type	01 Number of Samples Taken	02 Samples Sent To	03 Estimated Date Results Available
Groundwater			
Surface Water			
Waste			
Air		N A	
Runoff			
Spill			
Soil			
Vegetation			
Other			

III. FIELD MEASUREMENTS TAKEN

01 Type	02 Comments
	N A

IV. PHOTOGRAPHS AND MAPS

01 Type [X] Ground [ ] Aerial

02 In Custody of Ecology and Environment, Inc., Seattle, USEPA Region X
(Name of organization or individual)

03 Maps [X] Yes [ ] No

04 Location of Maps
Ecology and Environment, Inc., Seattle

V. OTHER FIELD DATA COLLECTED (provide narrative description of sampling activities)

Sampling was not performed as part of the Site Inspection for the following reasons: Wastes currently generated at AEI are not disposed of on-site; contaminated sediments in the old ditch, if present, have been buried and pose minimal risk if left undisturbed; there are no ground water or surface water target populations in the vicinity of the site.

VI. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Ecology and Environment, Inc. (3/06/86)

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 7 - OWNER INFORMATION

I. IDENTIFICATION	
01 State	02 Site Number
WA	D009278847

II. CURRENT OWNER(S)

01 Name	02 D+B Number	03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	05 City	06 State	07 Zip Code
T. Boyd Coleman/ R.R. Christopherson		9585 - 8th Avenue S.	3471	Seattle	WA	98108

PARENT COMPANY (If applicable)

08 Name	09 D+B Number	10 Street Address (P.O. Box, RFD #, etc.)	11 SIC Code	12 City	13 State	14 Zip Code

III. PREVIOUS OWNER(S) (List most recent first)

01 Name	02 D+B Number	03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	05 City	06 State	07 Zip Code
Thomas O. Presleigh (with 2 current owners)		9585 - 8th Avenue S.	3471	Seattle	WA	98108

IV. REALTY OWNER(S) (If applicable, list most recent first)

01 Name	02 D+B Number	03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	05 City	06 State	07 Zip Code
T. Boyd Coleman/ R.R. Christopherson		9585 - 8th Avenue S.	3471	Seattle	WA	98108

V. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Ecology and Environment, Inc. Site Inspection (3/06/86)

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 8 - OPERATOR INFORMATION

I. IDENTIFICATION	
01 State	02 Site Number
WA	D009278847

II. CURRENT OPERATOR (Provide if different from owner)

01 Name	02 D+B Number	04 SIC Code
T. Boyd Coleman/ R.R. Christopherson		
03 Street Address (P.O. Box, RFD #, etc.)		3471
9585 - 8th Avenue S.		
05 City	06 State	07 Zip Code
Seattle	WA	98108
08 Years of Operation	09 Name of Owner	

OPERATOR'S PARENT COMPANY (If applicable)

10 Name	11 D+B Number	13 SIC Code
12 Street Address (P.O. Box, RFD #, etc.)		
14 City	15 State	16 Zip Code

III. PREVIOUS OPERATOR(S) (List most recent first; provide only if different from owner)

01 Name	02 D+B Number	04 SIC Code
03 Street Address (P.O. Box, RFD #, etc.)		
05 City	06 State	07 Zip Code
08 Years of Operation	09 Name of Owner During This Period	

PREVIOUS OPERATORS' PARENT COMPANIES (If applicable)

10 Name	11 D+B Number	13 SIC Code
12 Street Address (P.O. Box, RFD #, etc.)		
14 City	15 State	16 Zip Code

01 Name	02 D+B Number	04 SIC Code
03 Street Address (P.O. Box, RFD #, etc.)		
05 City	06 State	07 Zip Code
08 Years of Operation	09 Name of Owner During This Period	

10 Name	11 D+B Number	13 SIC Code
12 Street Address (P.O. Box, RFD #, etc.)		
14 City	15 State	16 Zip Code

01 Name	02 D+B Number	04 SIC Code
03 Street Address (P.O. Box, RFD #, etc.)		
05 City	06 State	07 Zip Code
08 Years of Operation	09 Name of Owner During This Period	

10 Name	11 D+B Number	13 SIC Code
12 Street Address (P.O. Box, RFD #, etc.)		
14 City	15 State	16 Zip Code

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Ecology and Environment, Inc. Site Inspection (3/06/86)

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 9 - GENERATOR/TRANSPORTER INFORMATION

I. IDENTIFICATION	
01 State	02 Site Number
WA	D009278847

I. ON-SITE GENERATOR

01 Name	02 D+B Number	
Advance Electroplating, Inc.		
03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	
9585 - 8th Avenue S.	3471	
05 City / 06 State / 07 Zip Code		
Seattle / WA / 98108		

II. OFF-SITE GENERATOR

01 Name	02 D+B Number	01 Name	02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code
05 City / 06 State / 07 Zip Code		05 City / 06 State / 07 Zip Code	
01 Name	02 D+B Number	01 Name	02 D+B Number
03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code
05 City / 06 State / 07 Zip Code		05 City / 06 State / 07 Zip Code	

III. TRANSPORTER(S)

01 Name	02 D+B Number	01 Name	02 D+B Number
Northwest Enviroservice, Inc.		Chem Security Systems, Inc.	
03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code
1500 Airport Way South		P.O. Box 1866	
05 City / 06 State / 07 Zip Code		05 City / 06 State / 07 Zip Code	
Seattle / WA / 98134		Bellevue / WA / 98009-1866	
01 Name	02 D+B Number	01 Name	02 D+B Number
Baron-Blakeslee, Inc.		Georgia Pacific	
03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code	03 Street Address (P.O. Box, RFD #, etc.)	04 SIC Code
5920 N.E. 87th Avenue			
05 City / 06 State / 07 Zip Code		05 City / 06 State / 07 Zip Code	
Portland / OR / 97220		Bellingham / WA	

IV. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Generator Annual Dangerous Waste Reports (Form 4 - 1984, 1985)

Additional Transporter:
NAME: Van Waters and Rogers
STREET ADDRESS: 3950 N.W. Yeon
CITY: Portland
STATE/ZIP CODE: OR 97210

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 State	02 Site Number
WA	D009278847

II. PAST RESPONSE ACTIVITIES

01 ☐ A. Water Supply Closed — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ B. Temporary Water Supply Provided — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ C. Permanent Water Supply Provided — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ D. Spilled Material Removed — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ E. Contaminated Soil Removed — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ F. Waste Repackaged — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ G. Waste Disposed Elsewhere — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ H. On Site Burial — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ I. In Situ Chemical Treatment — 02 Date _____ — 03 Agency _____
04 Description N A

01 ☐ J. In Situ Biological Treatment — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ K. In Situ Physical Treatment — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ L. Encapsulation — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ M. Emergency Waste Treatment — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ N. Cutoff Walls — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ O. Emergency Diking/Surface Water Diversion — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ P. Cutoff Trenches/Sump — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ Q. Subsurface Cutoff Wall — 02 Date _____ — 03 Agency _____
04 Description

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 10 - PAST RESPONSE ACTIVITIES

I. IDENTIFICATION	
01 State	02 Site Number
WA	D009278847

II. PAST RESPONSE ACTIVITIES (Continued)

01 ☐ R. Barrier Walls Constructed — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ S. Capping/Covering — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ T. Bulk Tankage Repaired — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ U. Grout Curtain Constructed — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ V. Bottom Sealed — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ W. Gas Control — 02 Date _____ — 03 Agency _____
04 Description

01 ☒ X. Fire Control — 02 Date 11/20/85 — 03 Agency _____
04 Description Fire of unknown origin destroyed much of new plating line building. 7000 gallons of chrome-contaminated waste water was generated by water used by firemen to put out the fire.

01 ☐ Y. Leachate Treatment — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ Z. Area Evacuated — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ 1. Access to Site Restricted — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ 2. Population Relocated — 02 Date _____ — 03 Agency _____
04 Description

01 ☐ 3. Other Remedial Activities — 02 Date _____ — 03 Agency _____
04 Description

III. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

Ecology and Environment, Inc. Site Inspection (3/06/86)

POTENTIAL HAZARDOUS WASTE SITE
SITE INSPECTION REPORT
PART 11 - ENFORCEMENT INFORMATION

I. IDENTIFICATION	
01 State	02 Site Number
WA	D009278847

II. ENFORCEMENT INFORMATION

01 Past Regulatory/Enforcement Action [X] Yes [ ] No

02 Description of Federal, State, Local Regulatory/Enforcement Action

AEI Fined $800.00 for excess nickel discharge to METRO sewer (6/27/84).

II. SOURCES OF INFORMATION (Cite specific references, e.g., state files, sample analysis, reports)

METRO Monitor, (10/84).

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